LAND AND WATER CONSERVATION

Brown County

1150 BELLEVUE ST.
GREEN BAY, WI 54302

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PHONE (920) 391-4620 FAX (920) 391-4617 WEB: www.co.brown.wi.us

COUNTY CONSERVATIONIST

DAVID WETENKAMP

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ENGR TECHNICIAN

DESIGN PACKAGE

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Turning Brown County Green

Land & Water Conservation Department

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Ledgeview Farms, LLC

This narrative is in regards to the issuance of an Animal Waste Storage Permit required by Brown County and WDNR for WPDES requirements. An approved plan and permit are required for the construction of a proposed 4.3 million gallon in-place earthen and concrete composite combination lined manure storage structure. Brown County LWCD has developed design and detail drawings for this project to be in compliance with NRCS Standard 313, Waste Storage Facility and Brown County Animal Waste Management Ordinance.

This CAFO sized dairy farm consists of two site(s) Upper & Lower. Due to shallow bedrock, location in the topography and space limitations on the upper farm the size of the manure storage is limited to the proposed plan. Ledgeview Farms, LLC has applied for WPDES status and all supporting documents, forms and required information has been submitted to WDNR.

The Upper site contains the milking center, dairy animals, large heifers and calves. Animals are housed and confined to buildings except for Lot B for small heifer calves. Manure is daily hauled pending construction of the proposed manure storage structure. Milking center waste is contained in a separate cast-in-place reception tank located outside of the existing milking center barn and hauled to crop fields as needed. Currently a new milking parlor is being planned/constructed and attached to the new freestall building built in 2013 on the upper farm. Plans are to complete the parlor design for tanks and transfer system in winter 2015, until then the existing milking center will be used and manure will be daily hauled.

The Lower site contains the remaining heifer replacements and beef animals. The animals are confined to loafing barns and outside concrete lot. 95% of the manure and runoff is contained in the barns and on the lot, which is daily hauled as needed. A 4895 sq.ft. portion of the 42,500 sq.ft. concrete lot runs over the farmstead and to a road ditch. It is currently plugged and scraped to contain runoff as a temporary measure until designs can be completed for a permanent solution with the leachate system. The lower site contains the main feed storage bunkers. A leachate system is being designed in winter of 2015. Farm resources, weather and time constraints did not allow for the system to be built in 2014.

The in-place earth and concrete lined manure storage facility is being proposed to allow Ledgeview Farms to manage manure more effectively, ensure the required 180 day storage volume is available year round and prevent the need for winter spreading. No manure transfer is being proposed with this structure at this time. Manure will be transferred to and from the structure with tractor/spreader, skid loader or portable equipment from the existing barns. The proposed structure will be will be built with existing in-place soils. The topsoil will be stripped and stockpiled to be reused for final grading and seeding. Existing soils are mixed clays and silts ranging from 85%-90% fines passing P200 sieve tests and P.I.'s of 26-29. Exposed and shallow bedrock are located on site in the vicinity of the structure so precautionary design is calling for the structures ramp, bottom and 10' of the sideslopes be lined with reinforced concrete per plan requirements. This will also aid in sand laden manure removal as needed. Current soil borings show minimum NRCS 313 standard requirements for bedrock separation and groundwater are being met, but due to the land slope soil borings will be conducted during construction to further show separation distances are exceeded as as-built conditions are realized. Adjustments during construction may have to be made by inspectors during construction. Due to the structure being designed with two liner types, the 10' concrete sideslope also ties in the two liners with a transitional area for liner integrity meeting standards. NRCS Standard 313 Table 5 is being used for design requirements. The entire interior sideslope surface to a depth of 12" will be re-compacted using Wisconsin Construction

Specification 300. The soil will be carefully stripped and stockpiled on an adjacent crop field to be later compacted back in place with rubber tired scrapers and/or sheepsfoot vibratory roller. Tracked dozers will be used for fine grading and some clay placement before compaction procedures. This soil has been logged and tested in meeting current 313 requirements for an in-place clay liner. See design package for soils data. If any off-site fill needs to be brought in to finish the project it may come from adjacent excavation or previously tested borrow sites that meet 313 clay liner specifications. Two such sites are the Daanen & Janssen Quarry in the Glenmore Township and Brown County Landfill borrow site. Any other borrows will need to be tested and approved prior to use.

This project is estimated to have a disturbed footprint of 4.7 acres and will need a construction site erosion control permit and plan. Brown County has included erosion control measures and procedures in the plan to reduce offsite erosion during the proposed construction project.

The project is planned to be constructed in the late summer/fall of 2014-2015. See plan for manure storage location, elevations and construction details. Brown County will inspect the site during construction and provide as-built documentation/certification for the manure storage that will meet WDNR-WPDES Permit requirements, NRCS Standard 313 and Brown County Animal Waste Management Ordinance.

Dave Wetenkamp
Brown County LWCD
1150 Bellevue St.
Green Bay, WI 54302
(920) 391-4639

CONSTRUCTION INSPECTION PLAN

EARTHEN & CONCRETE COMPOSITE LINER WASTE STORAGE POND
Ledgeview Farms, Brown County

A. INSPECTORS

The primary field inspectors for this project will be staff from the Brown County LCD office.

B. GENERAL

The work to be completed on this project shall consist of the following items, with the pertinent Wisconsin Construction Specifications (WCS) indicated. All construction specifications and standards can be referenced online at NRCS online web services or in the attached documents included with this plan.

1.	Earthfill for Waste Storage Facilities	Wis. Const. Spec. 204
2.	Clay Liner	Wis. Const. Spec. 300
3.	Concrete	Wis. Const. Spec. 4
4.	Fencing	Wis. Const. Spec. 10/ Fencing Detail Sheet
5.	Critical Area Planting	NRCS Std. 342/plan detail sheets
6.	Waste Storage Facility	NRCS Std. 313

This project is designed according to the NRCS 313, Waste Storage Facility standards. **This is a job Class IV in-place earth & concrete composite lined project based on the M.O.L capacity (592,256 cu.ft.) of the structure**. The original plan and subsequent changes to the construction plan must be approved by WDNR, a Wisconsin licensed P.E. or engineering practitioner with appropriate engineering approval.

The presence or absence of any below ground utilities must be documented in written form by the landowner prior to construction.

C. PRECONSTRUCTION CONFERENCE

A preconstruction conference may be held prior to providing any layout assistance. During the conference the construction plans, construction specifications, layout, required materials, required inspection, installation requirements, safety precautions, utilities, and any information needing clarification by the technical agencies will be discussed.

D. MATERIALS REQUIREMENTS

- Area under berm shall be inspected to ensure proper placement of fill material and removal of all organic materials.
- Document that the earth fill materials are compacted according to WCS 204.
- Make sure the 12" re-compacted clay liner material is stripped and sorted properly for the stockpile.
- Ensure a third party vendor is hired to provide clay liner field density testing and reporting.
- Document the topsoil thickness and the proper seeding of disturbed areas.

E. GENERAL INSPECTION

1. EXCAVATION PROCESS

a) Check lines and grades as they are constructed and document that the system is installed as planned.
b) Make sure that oversized rock, and other undesirable materials are removed.
c) See that adequate drainage is provided so that surface water does not enter pit.
d) Take safety precautions when working around excavations and heavy equipment.
e) Check placement and location of core trenches.

2. EARTHFILL WCS-204

a) Make certain that all organic matter is removed from areas receiving fill prior to placement.
b) Inspect and document the adequacy of earth fill materials and compaction of the berm.
c) Make sure that the thickness of the loose lift is within limits.
d) Determine need for wetting, drying, or mixing of fill material to satisfy moisture requirements.
e) Check lines and grades as they are constructed and document that the system is installed as planned.

3. CLAY LINER WCS 300

a) Ensure 12" liner is placed, compacted and tested properly.

4. CONCRETE WCS-4

a) Make sure of location prior to placement
b) Make sure that concrete meets Spec 4.
c) Check steel placement, spacing, chair support and material.
d) Make sure proper curing compound or curing methods are applied to concrete in a timely manner.

5. VEGETATION

a) Check that the placement of topsoil is adequate for a viable seedbed.
b) Verify that the proper species and quantities of seed are applied.
c) Check that the seed is planted at the proper time of the year and that mulch is applied.
d) Verify erosion controls are in place before construction and maintained during project.

6. FENCE WCS-10

a) Make sure that a proper safety fence is installed.
b) Make sure gate openings are properly located.

7. TILE DRAINAGE

a) Make sure all tile lines **if** found are abandoned properly or re-routed if discovered with non-perforated or solid pipe.

CONSTRUCTION APPROVAL

Construction approval will be provided by David Wetenkamp Engineering Technician Brown County Land & Water Conservation Department, Green Bay, WI.

MANAGEMENT ASSESSMENT WORKSHEET (313-2C)
Concentrated Animal Feedlot Operations (CAFOs)
Waste Storage Facility (313) and/or Manure Transfer (634)

Farm: Ledgeview Farms **Owner/Operator** [redacted]

By: Dew **Date:** 9/08 Updated 8/14

Location of Waste Facility: [redacted] ¼ of [redacted] ¼, Sec. [redacted], T. [redacted], R. [redacted]

Township: Ledgeview, County Brown

I. **Animal Unit Calculation:** – See attached Animal unit worksheet & Manure Storage Facility Spreadsheet

Animal Type	Current Number of Animals/Type	Average Weight per Animal/Type	Animal Unit Equilavency Conversion Factor	Total Animal Units per Animal Type

*Total Animal Units

*If greater than 1,000 Animal Units, A Wisconsin Pollutant Discharge Elimination System (WPDES) Permit is required.

II. **Land Base Available for Waste Utilization** – See 590 Nutrient Mgmt. Plan submitted to WDNR for further detail.

Refer to USDA/NRCS FOTG Standard 590 for waste utilization specifics:

a) Cropland acres: Owned _____ acres, Rented _____ acres Total 2100 acres

b) Intent to winter spread: Yes _____ No _____

c) Acres/Animal Units (Ratio): Owned _____, Rented _____, Total _____

III. **Intent/purpose Statement of Practice Implementation:**

A) Waste Processing and Treatment Strategies: Describe purpose of treatment and its intent relative to solid and nutrient distribution, landspreading rates, odor control and distribution strategies: Farm is approaching WPDES status and needs to plan for 180 storage capacity. No treatment planned, just store and haul at approved times. No winter spreading.

B) Processing and Treatment By-products (mat'l description, consistency, volumes, etc.)
Organic Solids:
Dilute Liquids: N/A
Gas Production:

IV. Waste Characterization and Volume Estimates: – See attached Waste Storage Facility Design Spreadsheet.

a) Manure Production:

Animal Type-Management Group	Housing Type	Waste Consistency Liquid (1) Dilute (d) Solid(5)	Number: Total Head	Average Weight per head LB.	Daily Manure Production per head (Cu. Ft.)	Volume per day/group (Cu. Ft.)

Storage Period _____ days

Total Volume/Storage Period _____ Cu. Ft. or _____ gallons

b) **Bedding** Utilization and Volume:

Bedding Type	Volume per Head/Stall Cu. Ft.	Number of Head/Stalls	Volume (Cu. Ft.)

Storage Period _____ days

Total Volume/Storage Period _____ Cu Ft. or _____ gallons

c) **Dilute Wastewater** Utilization and Volume:

Dilute Wastewater Source	Volume per Head Gallons	Number of Head	Volume Gallons

Storage Period _____ days

Total Volume/Storage Period _____ Cu Ft. or _____ gallons

Total Volumes/ All Sources _____ _____ Cu. Ft. or _____ gallons

3/3

Are all Wastes to be stored in single Waste Facility? X Yes, _____ No

If no, how many containment facilities will be used? ~~X~~ 1 New Facility

Two existing concrete structures w/ slab & walls. They are located on plan maps and on upper farm SW of proposed earthen facility. These will not be used anymore. They will remain empty, only used as a emergency structures it needed.

9A

V. Storage method (Facility Type): Earthen (clay) with concrete heavy use protection on storage bottom and ~~steps~~ ramp.

VI. Liner options and preferences: (Construction Specification Requirements)
WCS 204 / concrete composite / WCS 300 (12" Liner)

VII. Waste Transfer methods (Refer to Std 634):
Manure will be hauled into the facility as needed from animal production areas with spreaders, trucks and dump boxes, Transfer system is being discussed.

VIII. Method to empty storage facility/Special Access Needs:
Storage facility will collect snow/rainwater and hold some contaminated runoff as needed. Structure can be agitated and pumped and solids mechanically loaded and hauled as needed,

IX. Access needs to transfer system and/or waste storage facility:
Access road to structure is planned/sited and 10:1 ingress/egress ramp designed to be used for transfer in and out w/manure,

X. Safety issues:

a) Animal and Human Safety (entry, equipment contact, fencing, gating, etc.):
Fence and gate facility is required.

b) Structural failure Safety (secondary containment, resource protection, discharge impacts, etc.): No secondary containment planned. Structure built to 313 w/ WCS 204 specifications and core trenches,

XI. Labor and Management Issues:
Nutrient management 590 required by State of Wis and Brown County Permits.

XII. Odor, aesthetics, animal health:
Homes located to Northeast and east will be impacted by odor.

XIII. Expansion provisions: None – As designed and sited this ~~site~~ structure is not readily easy to expand.

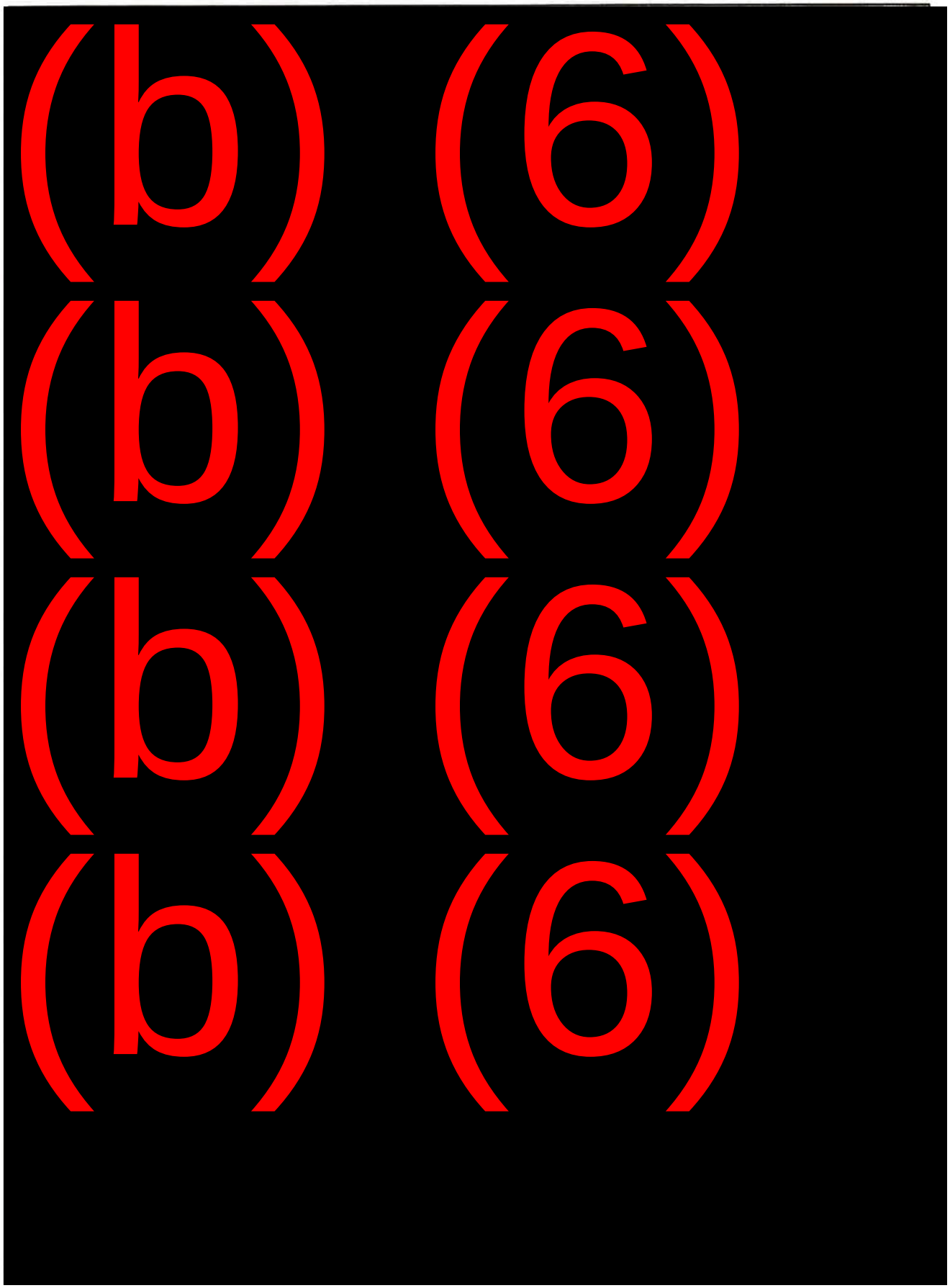
SITE ASSESSMENT WORKSHEET (313-2D)
Waste Storage Facility (313) and/or Manure Transfer (634)

Farmer/Landowner: Ledge view Farms

Assessment Interviewer: DCW **Date:** 9/08

1. Sketch the site and add photos and/or maps as needed – See erosion control map and plan view
2. Consider these items and describe or add to sketch:
   - Buildings - locations and elevations ✓
   - Roads, lanes – lane planned/sited for waste stream and hauling.
   - Property lines, setbacks – see setback map
   - Wells – none located within 250'
   - Floodplains – N/A
   - Surface channels – Drainage diverted w/ ditch s. end of facility
   - Drain tile – None known
   - Utilities, overhead lines – none known
   - Easements – none known
   - Cultural resources – not checked
   - Wetlands – None found on Wisconsin wetland Inventory Maps
   - Other
3. Test pit information: attach "Summary of Soil Profile Information" (3C) ✓
4. Karst features- describe any within 1,000 feet Bedrock is exposed within 150'-200' to the east/southeast of proposed site.
5. Type(s) of storage facility being considered
6. Liner type In-place earth upper, concrete composite lower
7. Borrow description – to be determined and tested to meet 50% fines and P.I. 12 if needed.
8. Failure impacts

Can cause huge manure plume to the north down steep slopes and into beaver creek tributary to East River/ Fox River and Bay of Green Bay. May plug downstream culverts and overtop [redacted] Adequate seperation from liner to bedrock needs to be ensured. Concrete liner on floor and up sideslopes aids in sand bedding removal and protection from any Karst impacts.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590

NUTRIENT MANAGEMENT PLAN CRITERIA

Brown County
Land Conservation Dept.

Section 33

Town of Ledgeview
(b) (6)

May 2007

0 100 200 400 600 800 Feet

RESTRICTED AREAS:

Manure & organic byproducts may not be spread in these areas at any time:

1. Concentrated flow channels.
2. Permanent vegetated buffers
3. 35' buffer zone
4. Wetlands (WI DNR)
5. Within 50 feet of a potable well.
6. Locally identified areas with a high potential to pollute surface water.

Brown County does not guarantee this information to be correct, current or complete. The maps are only intended for use as a general reference and are not intended or suitable for site-specific decisions.

HAZARD AREAS:

Manure & organic byproducts may be spread in these areas only if they are incorporated within 72 hours:

1. Within 300 feet of streams and rivers. (Surface Water Quality Management Area - SWQMA)
2. Within 1,000 feet of lakes.
3. 200 feet upgradient of wells, sinkholes, creviced bedrock at the surface or other direct conduits to the groundwater, such as gravel pits and wells.
4. Hydric soils and soils with slopes greater than 6%.
5. Locally identified areas with a high potential to pollute surface water.

SOILS (all)

AIR PHOTO: Spring 2005

(b) (6)
(b) (6)
(b) (6)

– SHEET NUMBER 27

(b) (6)
(b) (6)
(b) (6)
(b) (6)

27

N

0 1000 2000 3000 4000 5000 5000 Feet

Scale 1:20000

BROWN COUNTY, WISCONSIN NO. 28

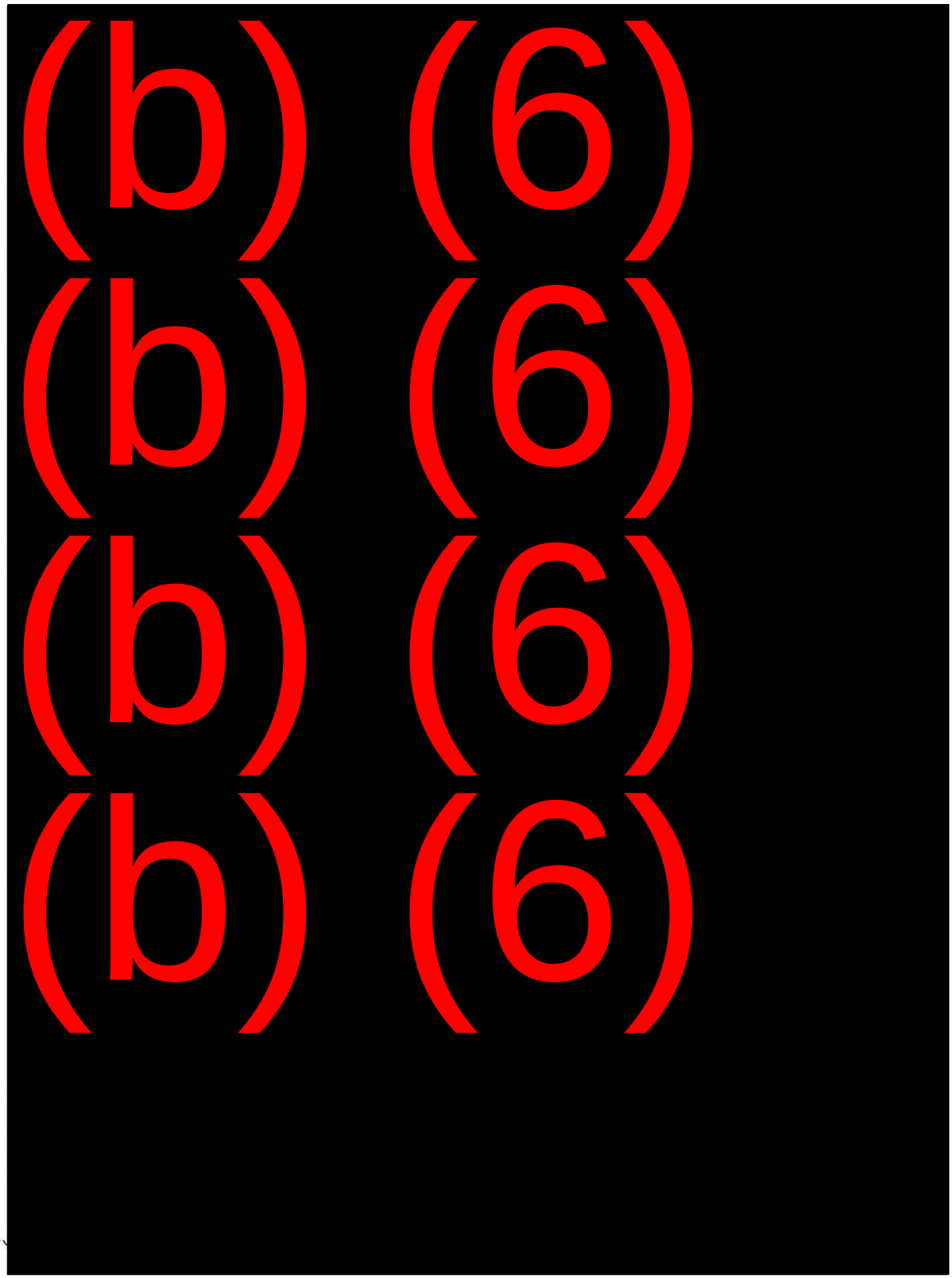
Land division corners are approximately positioned on this map.

BROWN COUNTY, WISCONSIN NO. 29

Kewaunee + Kolberg soils

Hyd. Grp

7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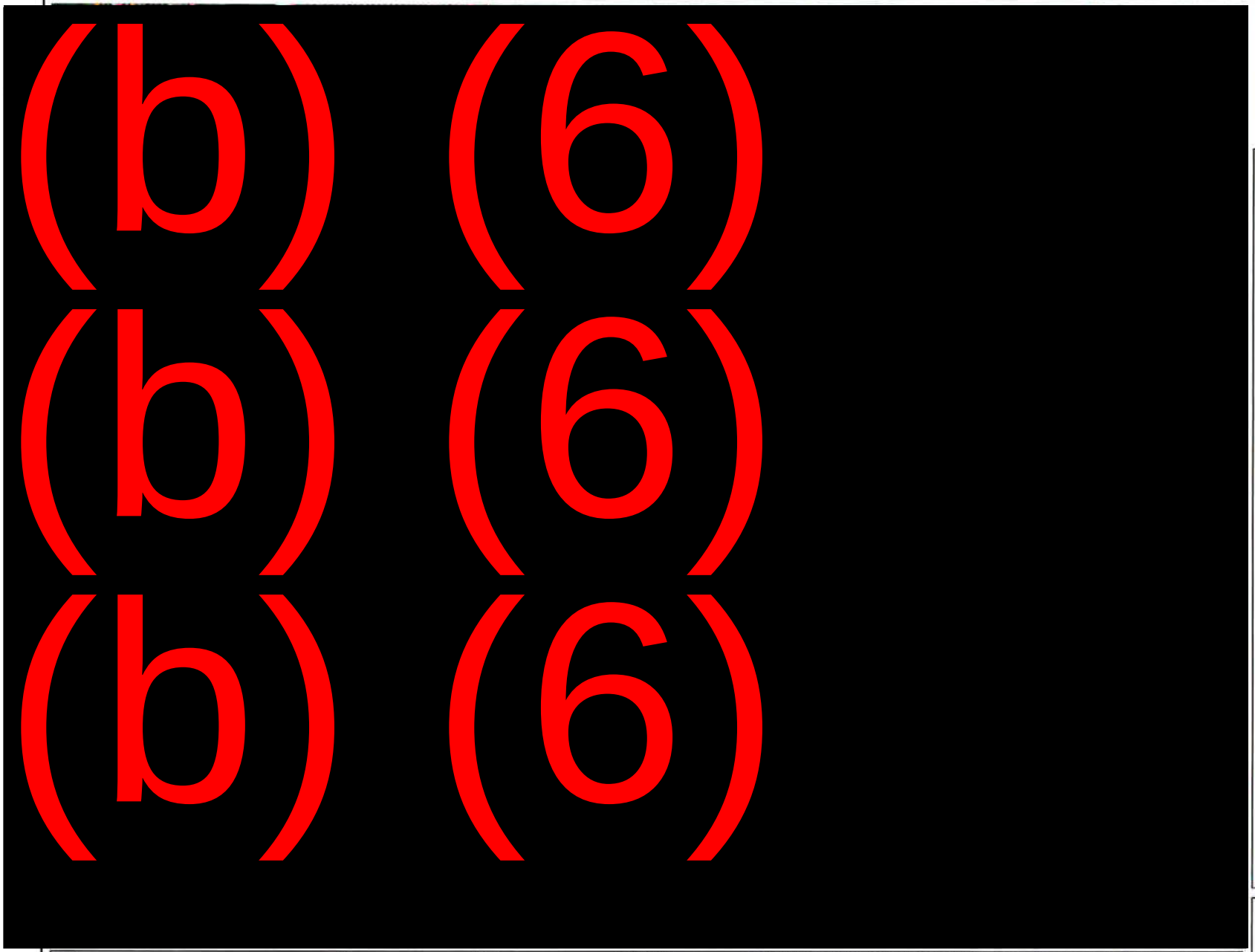
Surface Water Data Viewer Map



Legend

- Impaired Rivers and Streams
- Impaired Lakes

TMDL Category Lines

- Other or Multiple Factors
- Contaminated Sediment Dominatec
- Atmospheric Deposition Dominated
- Physical or Habitat Dominated
- Nonpoint Source Dominated
- Point and Nonpoint Source Blend
- Point Source
- Proposed for 303d listing

TMDL Category Areas

- Other or Multiple Factors
- Contaminated Sediment Dominatec
- Atmospheric Deposition Dominated
- Physical or Habitat Dominated
- Nonpoint Source Dominated
- Point and Nonpoint Source Blend
- Point Source
- Proposed for 303d listing

Impaired Waters River Status

- Other or Multiple TMDLs
- Proposed for List
- 303d Listed
- Addition
- TMDL Development
- TMDL Approved
- TMDL Implementation

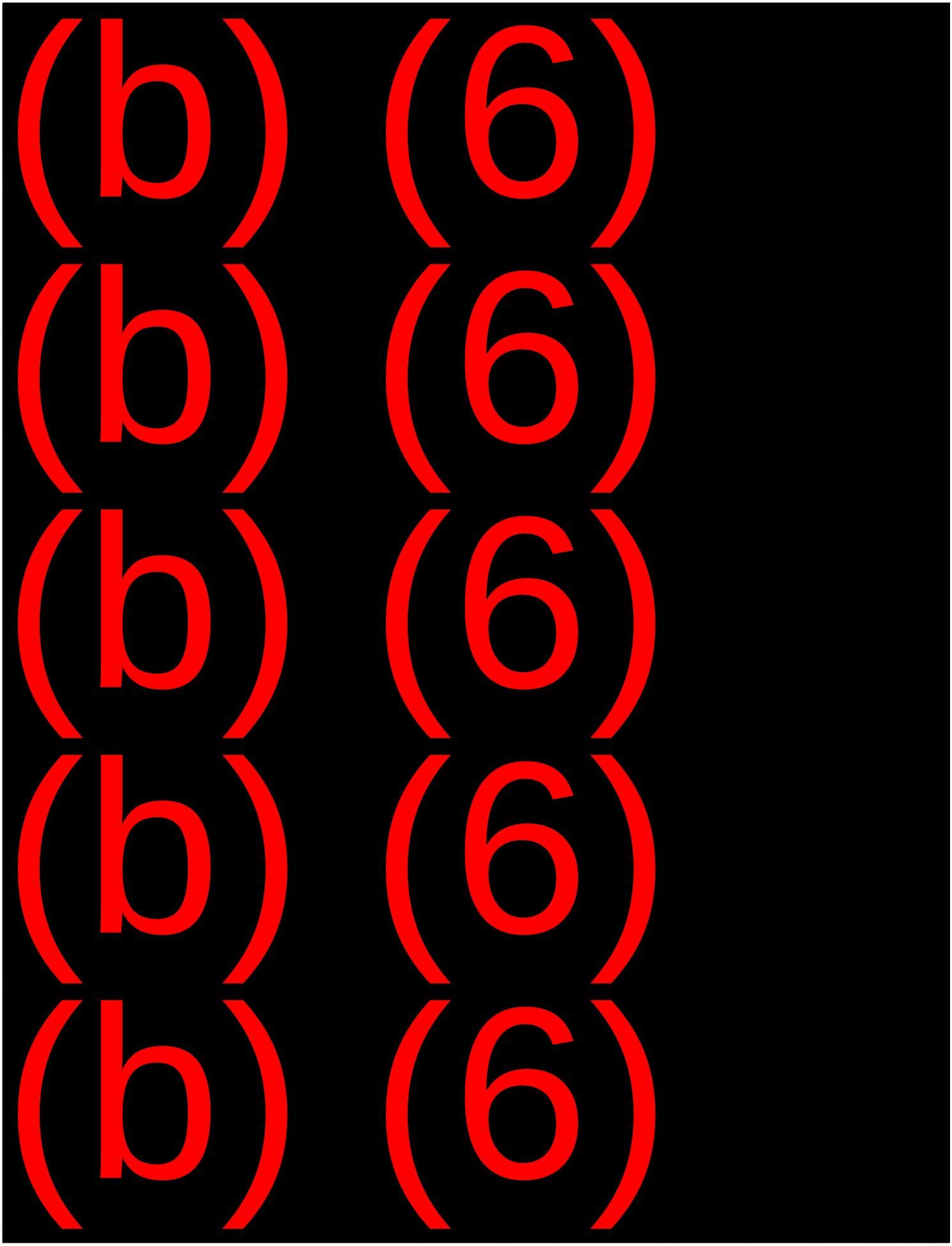
Notes

Ledgeview Farms, LLC 313 Site

9

0.1 0 0.06 0.1 Miles

NAD_1983_HARN_Wisconsin_TM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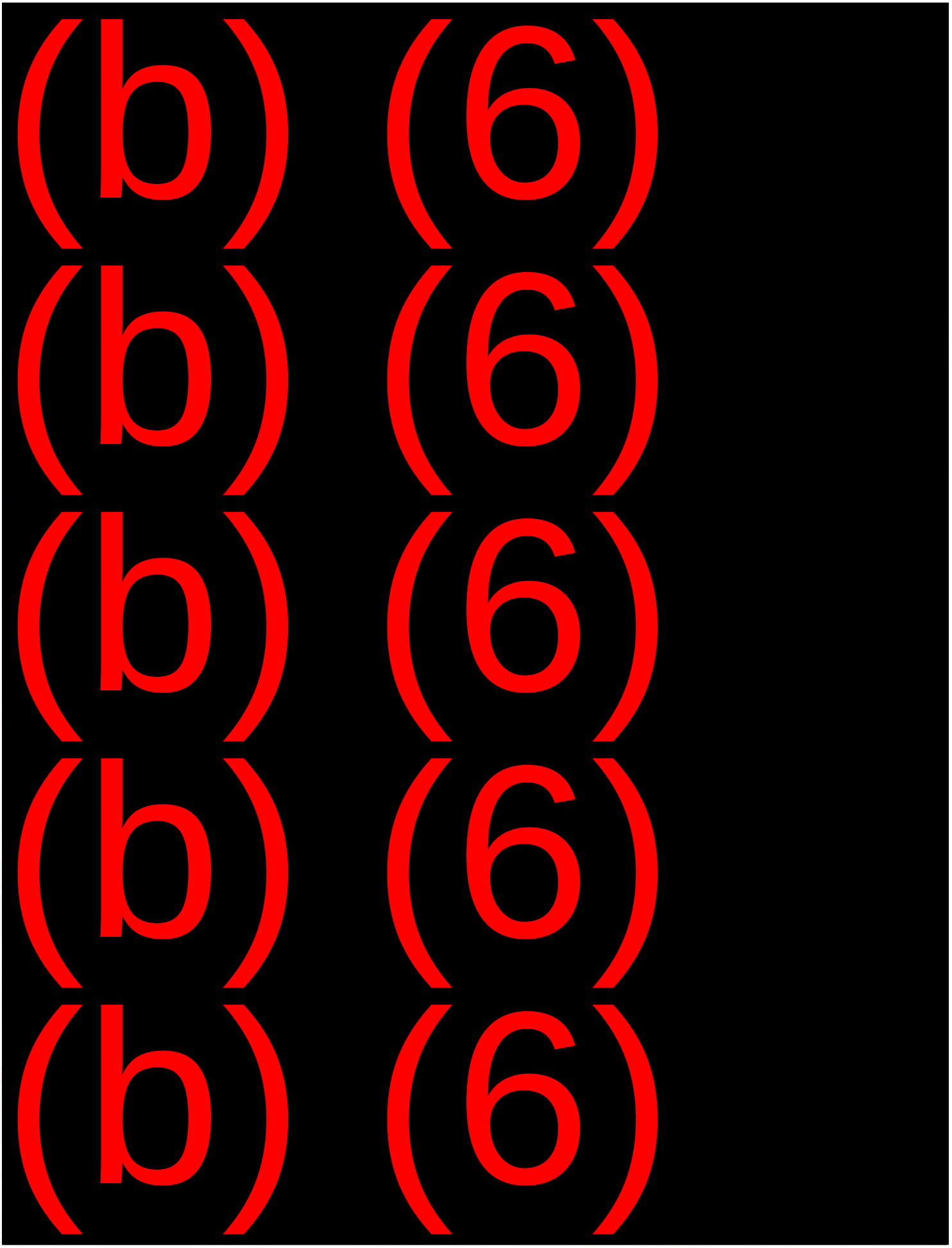
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SOIL TEST PIT/BORING LOG 313-3B

Call Diggers Hotline prior to investigation (1-800-242-8511)

Project: _____ County: Brown

Hole/Boring No.: #1, #2 & #3 Practice: 313

Surface Elevation: 83.67, 78.17, 70.90 Location: Upper farm

Logged By: DCW/CF Date: 6/09

Depth Ft.	USCS	Description of Materials	Sample no. and depth
0		#1 EG 83.67	
0 / 12"	ML	TS	
1' / 16.8	CL	Red dry clay plastic >50% fines 66.9	
0		#2 EG 78.17	
0 / 10"	ML	TS	
10" / 14"	CL	Red dry clay Plastic >50% fines 64.2	
0		#3 EG 70.9	
0 / 8"	ML	TS	
8" / 11.2'	CL	Red dry clay - Plastic 50% fines 59.7	

Description of materials should include:

1) amounts of clay, silt, sand, gravel, and stone and sizes of the sand, gravel and stone or composite gradation and sand and gravel size;
2) color;
3) seeps and regional water table; and
4) plasticity of fines.

Also note the depth samples were taken.

SOIL TEST PIT/BORING LOG 313-3B

Contact Diggers Hotline prior to investigation: (1-800-242-8511)

Project: (b) (6) County: Brown

Hole/Boring No.: #4, #5 & #6 Practice: 313

Surface Elevation: 72.02, 79.01, ~85 Location: Upper Farm

Logged By: Date: 6/09

Depth Ft.	USCS	Description of Materials	Sample no. and depth
0 /		#4 EG 72.02	
0 / 8"	ML	CL	
8" / 13.5	CL	Red dry clay - Plastic 750% fines 58.5	
/			
0 /		#5 EG 79.01	
0 / 8"	ML	TS	
8" / 15.2	CL	Red dry clay - Plastic 750% fines 63.8	
/			
0 /		#6 EG ~85	
0 / 8"	ML	TS	
8" / 6'	CL	Red clay Observation by landowner ~79	
/			

Description of materials should include:

1) amounts of clay, silt, sand, gravel, and stone and sizes of the sand, gravel and stone or composite gradation and sand and gravel size;
2) color;
3) seeps and regional water table; and
4) plasticity of fines.

Also note the depth samples were taken.

SOIL TEST PIT/BORING LOG 313-3B

Contact Diggers Hotline prior to investigation. (1-800-242-8511)

Project: [redacted] (b) (6)

County: Brown

Hole/Boring No.: #7, #8 & #9

Practice: 313

Surface Elevation: 78.53, ~85.0 & 73.0

Location:

Logged By:

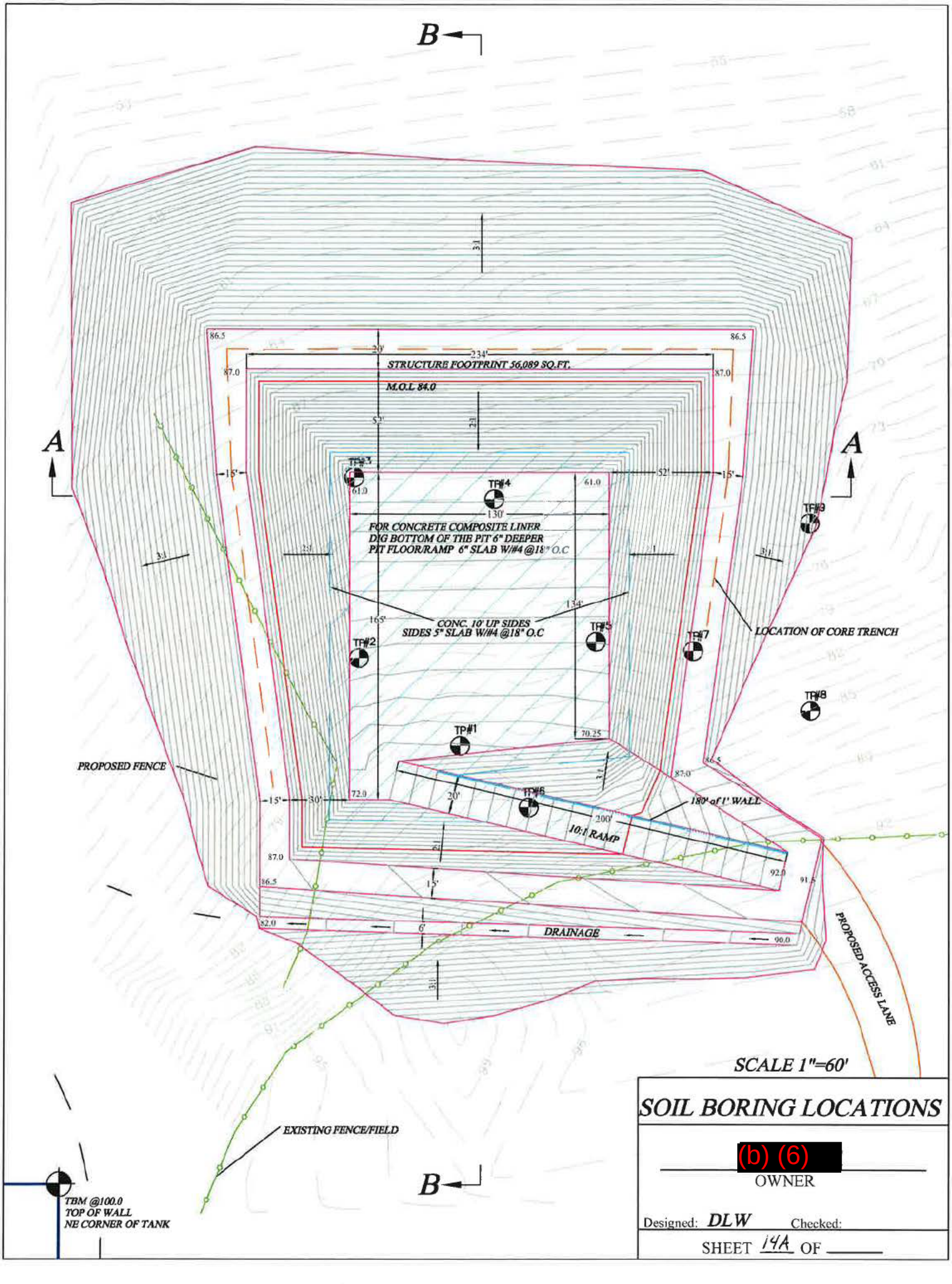
Date:

Depth Ft.	USCS	Description of Materials	Sample no. and depth
0 /		#7 78.5 EG	
0 / 1'	ML	TS	
1' / 7.2	CL	Red dry clay – plastic 750% fines	
7.2 / 10.2	BR	Bedrock (fractured/loose) 68.3	
0 /		#8 ~85.0 EG	
0 / 1'	ML	TS ~	
1' / 2'	SC/CL		
2' / 3'	BR	Bedrock ~82.0	
0 /		#9 73.0 EG	
0 / 8"	ML	TS	
8" / 11.9'	CL	Red dry clay – Plastic 750% fines 61.1	
/			

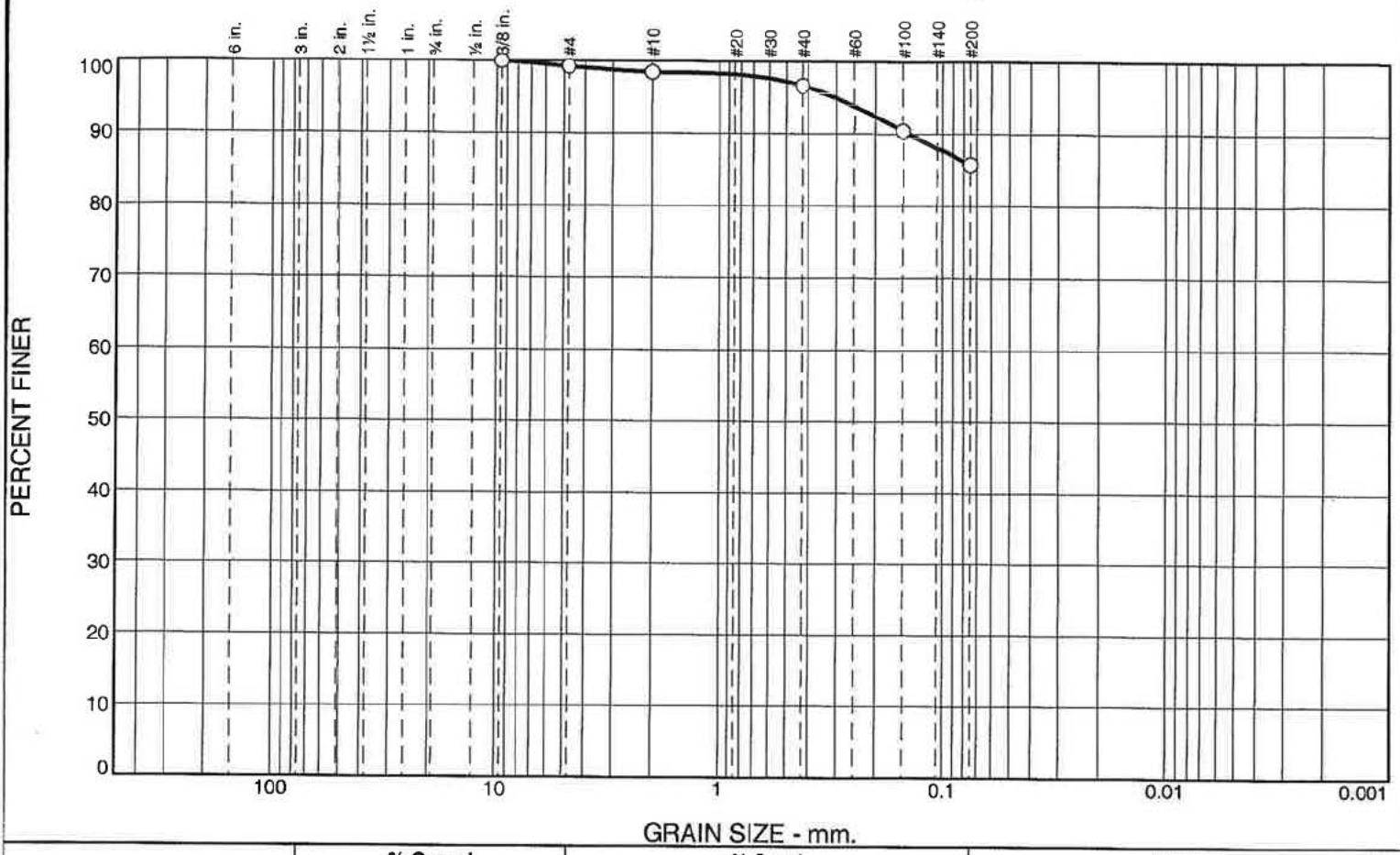
Description of materials should include:

1) amounts of clay, silt, sand, gravel, and stone and sizes of the sand, gravel and stone or composite gradation and sand and gravel size;
2) color;
3) seeps and regional water table; and
4) plasticity of fines.

Also note the depth samples were taken.


B
A
A
B
STRUCTURE FOOTPRINT 56,089 SQ.FT.
M.O.L 84.0
234'
130'
52'
15'
FOR CONCRETE COMPOSITE LINER
DIG BOTTOM OF THE PIT 6" DEEPER
PIT FLOOR/RAMP 6" SLAB W/#4 @18" O.C
CONC. 10' UP SIDES
SIDES 5" SLAB W/#4 @18" O.C
LOCATION OF CORE TRENCH
TP#1
TP#2
TP#3
TP#4
TP#5
TP#6
TP#7
TP#8
TP#9
PROPOSED FENCE
180' of 1' WALL
10:1 RAMP
DRAINAGE
PROPOSED ACCESS LANE
EXISTING FENCE/FIELD
TBM @100.0
TOP OF WALL
NE CORNER OF TANK
SCALE 1"=60'
SOIL BORING LOCATIONS
(b) (6)
OWNER
Designed: DLW
Checked:
SHEET 14A OF

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.8	1.8	10.9	85.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
(b) (6)	100.0		
#4	99.3		
#10	98.5		
#40	96.7		
#100	90.5		
#200	85.8		

* (no specification provided)

Material Description

SILTY CLAY

Atterberg Limits

PL= 14 LL= 43 PI= 29

Coefficients

D_{90}= 0.1404 D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(24)

Remarks

Source of Sample: ON-SITE **Depth:** 10.0'
Sample Number: TP-1

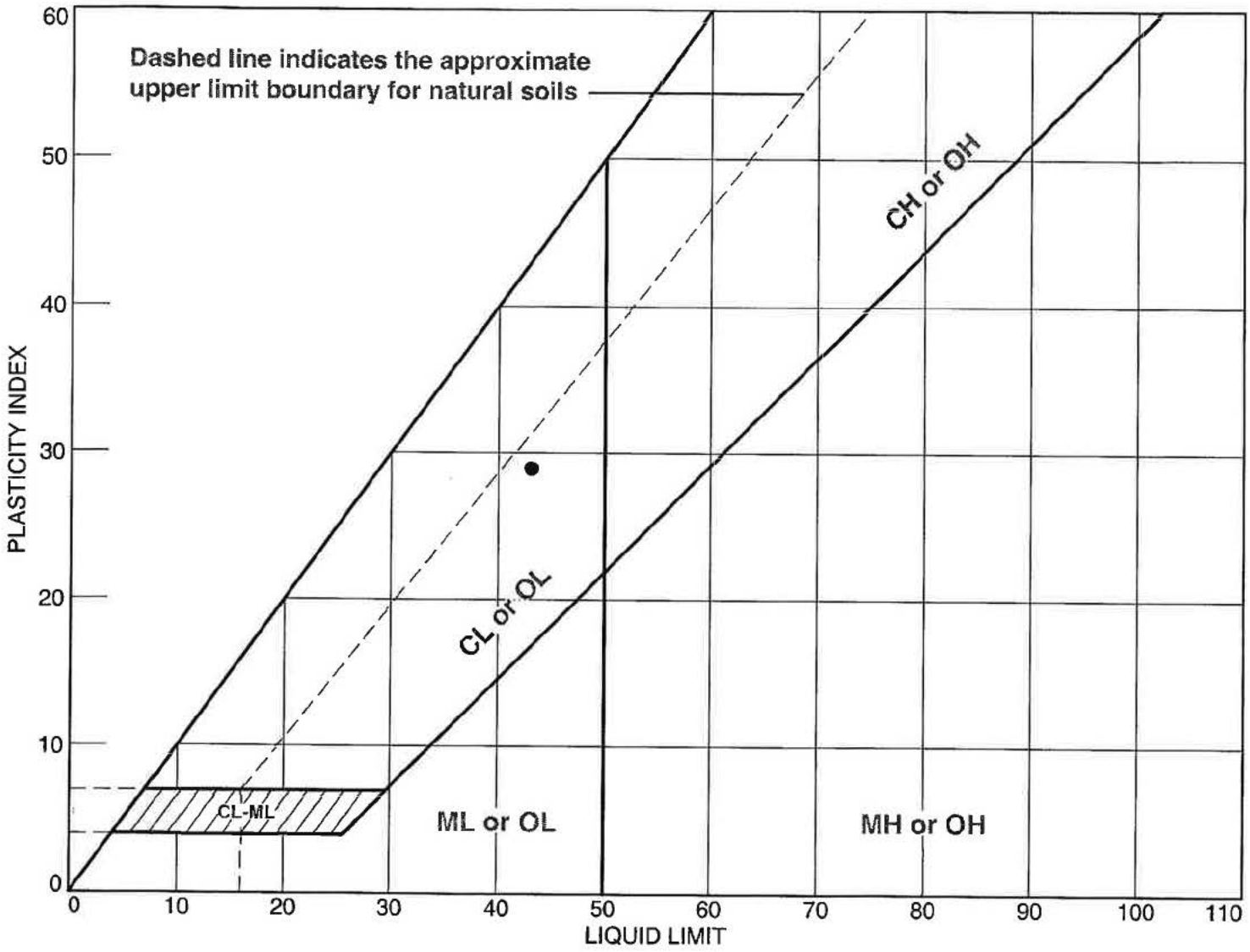
Date: 10/01/09

Client: (b) (6)(b) (6)
Project: LEDGEVIEW FARM

Project No: **Figure**

Tested By: BOB PEETERS

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON-SITE	TP-1	10.0'		14	43	29	CL

Client: (b) (6)(b) (6)

Project: LEDGEVIEW FARM

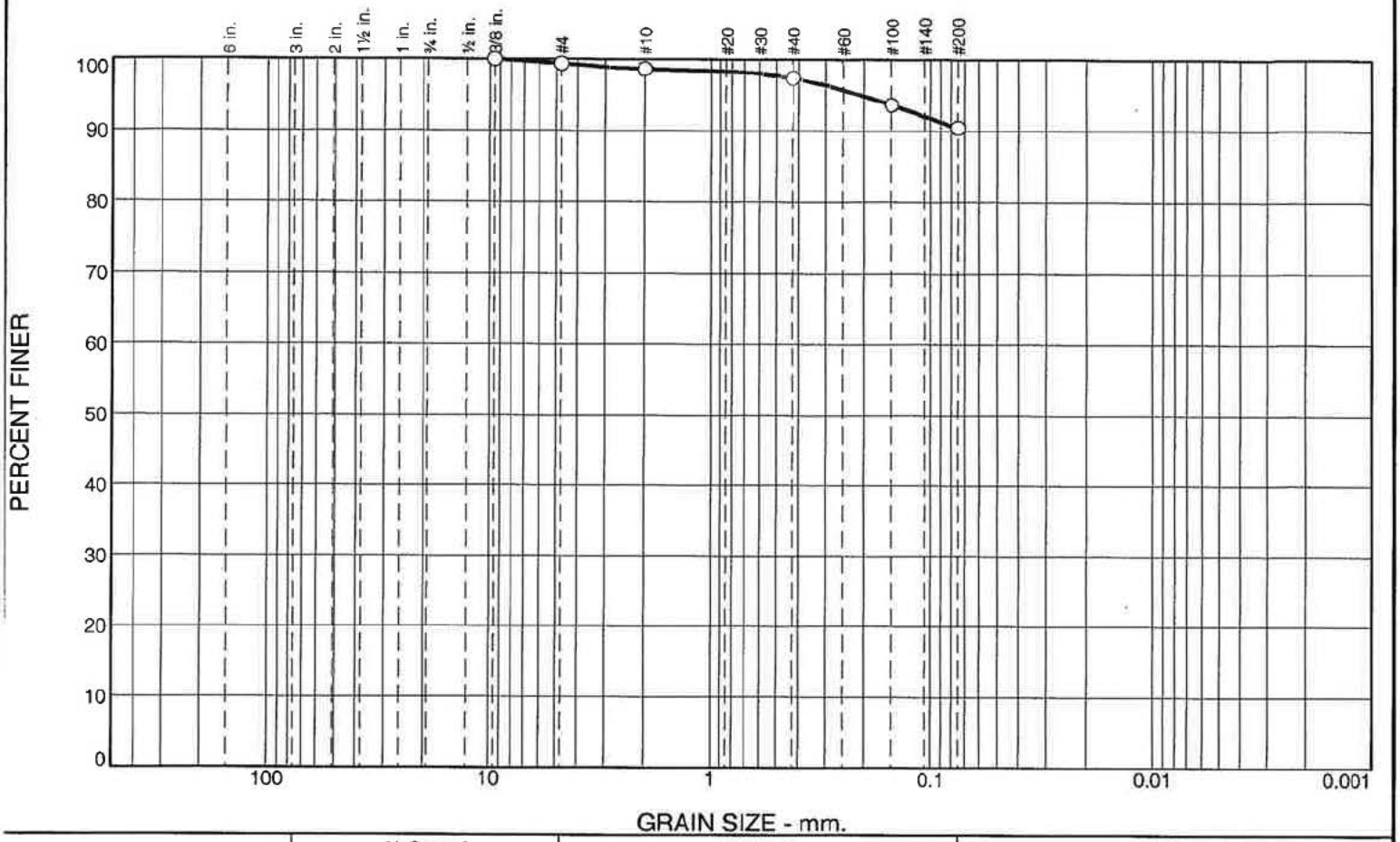
Project No.:

Figure

16

Tested By: BOB PEETERS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.8	1.2	7.0	90.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	98.6		
#40	97.4		
#100	93.6		
#200	90.4		

* (no specification provided)

Material Description

SILTY CLAY

Atterberg Limits

PL= 16 LL= 42 PI= 26

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(24)

Remarks

Source of Sample: ON-SITE **Depth:** 12.0'
Sample Number: TP-4

Date: 10/01/09

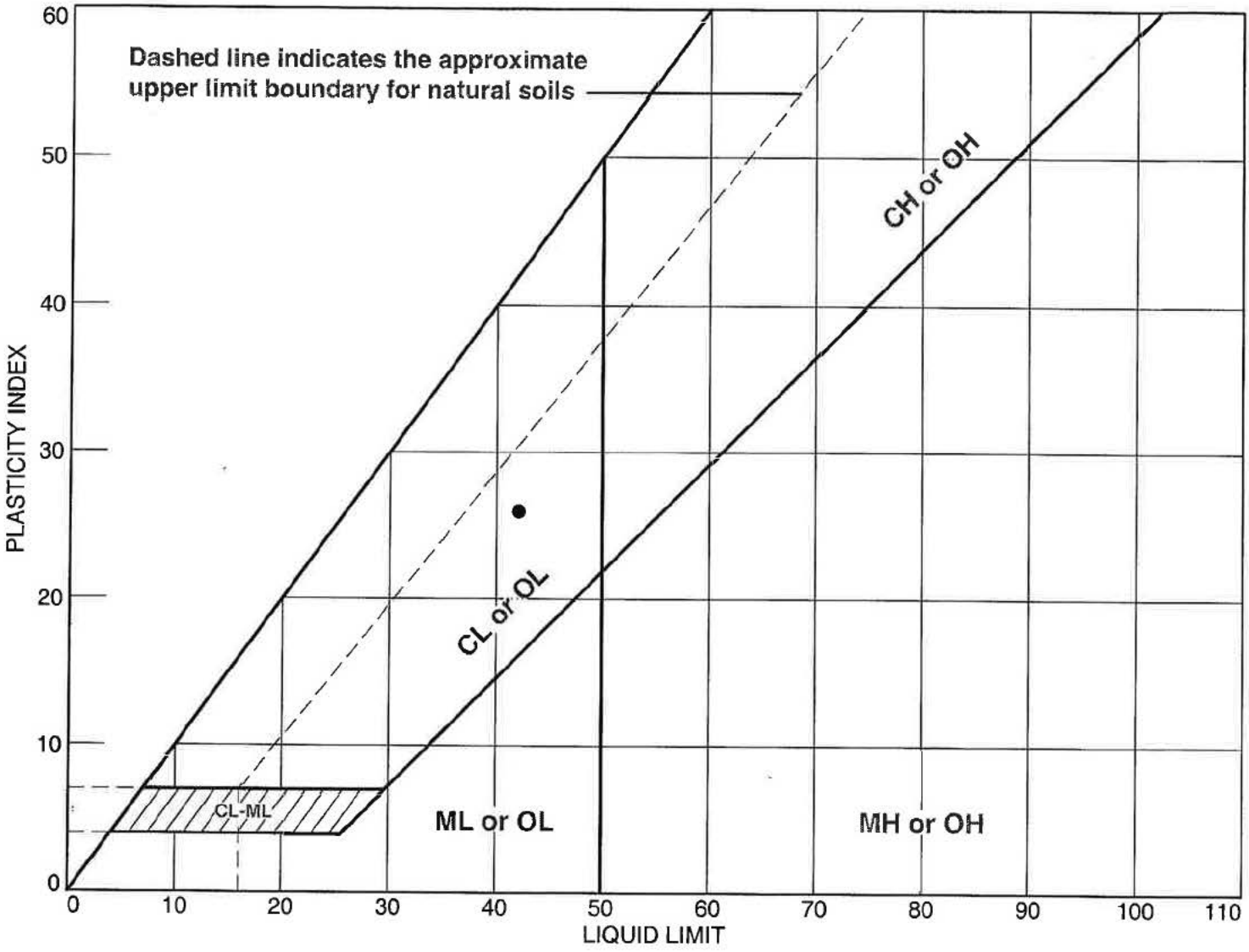
Client: (b) (6)(b) (6)
Project: LEDGEVIEW FARM

Project No: **Figure**

17

Tested By: BOB PEETERS

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON-SITE	TP-4	12.0'		16	42	26	CL

Client: (b) (6)(b) (6)

Project: LEDGEVIEW FARM

Project No.:

Figure 18

Tested By: BOB PEETERS

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

~(#1

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev 12-76

BN-1054-U

(b) (6)
(b) (6)
(b) (6)
(b) (6)
(b) (6)

19

#2

AUG 24 [illegible]

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev 12-76

(b) (6)
(b) (6)
(b) (6)
(b) (6)

20

#3

State of Wisconsin
Department of Natural Resources
Box 450
Madison, Wisconsin 53701

NOTE:

JUL 26 1977

White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15
Rev. 10–75

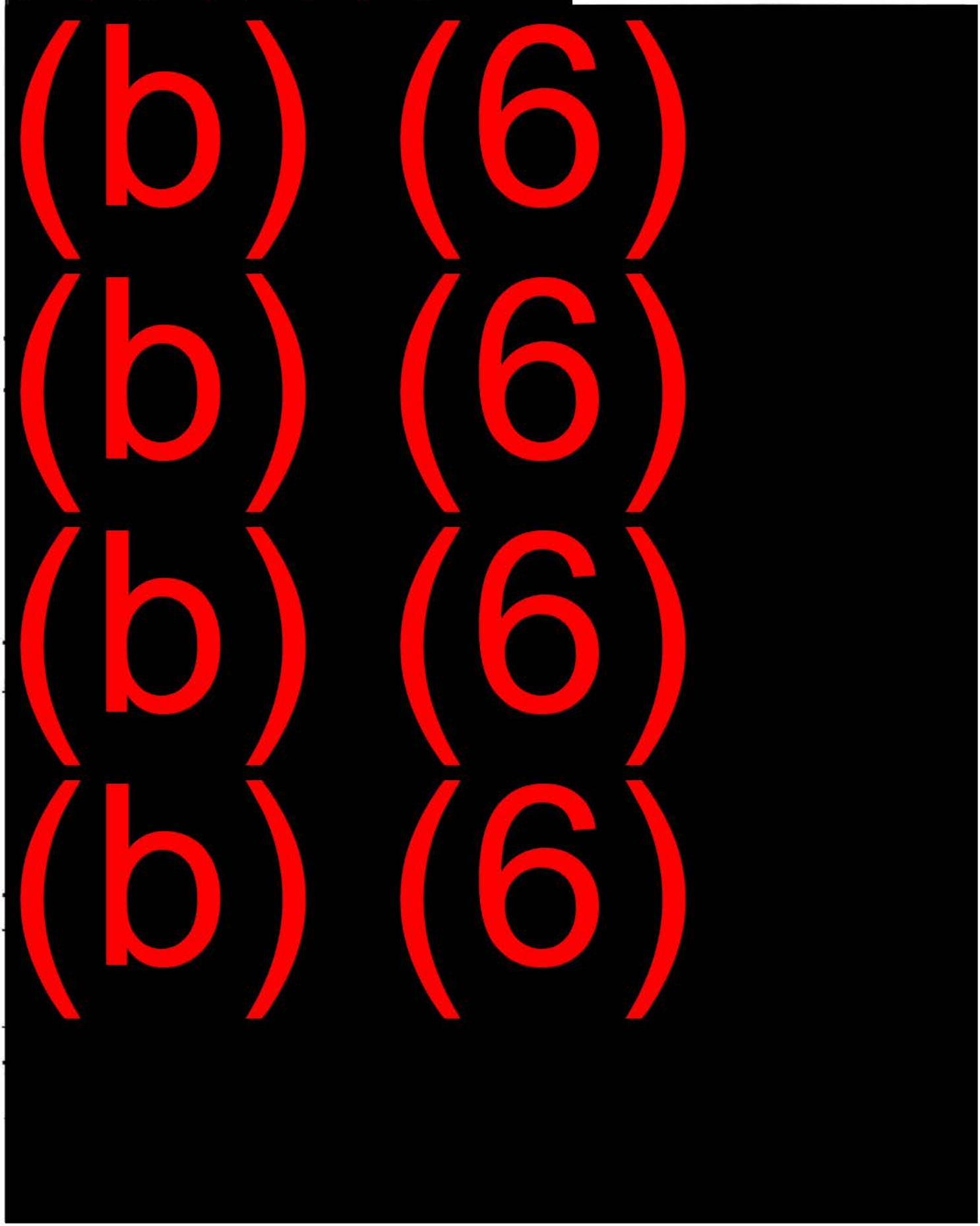
(b) (6)
(b) (6)
(b) (6)
(b) (6)

Upper Farm * Well log A

(b) (6)(b) (6)

State of WI - Private Water Systems - DG/2
Department of Natural Resources, Box 7921
Madison, WI 53707
Please type or Print using a black Pen
Please Use Decimals Instead of Fractions.

Form 3300-77A
(R 8/00)

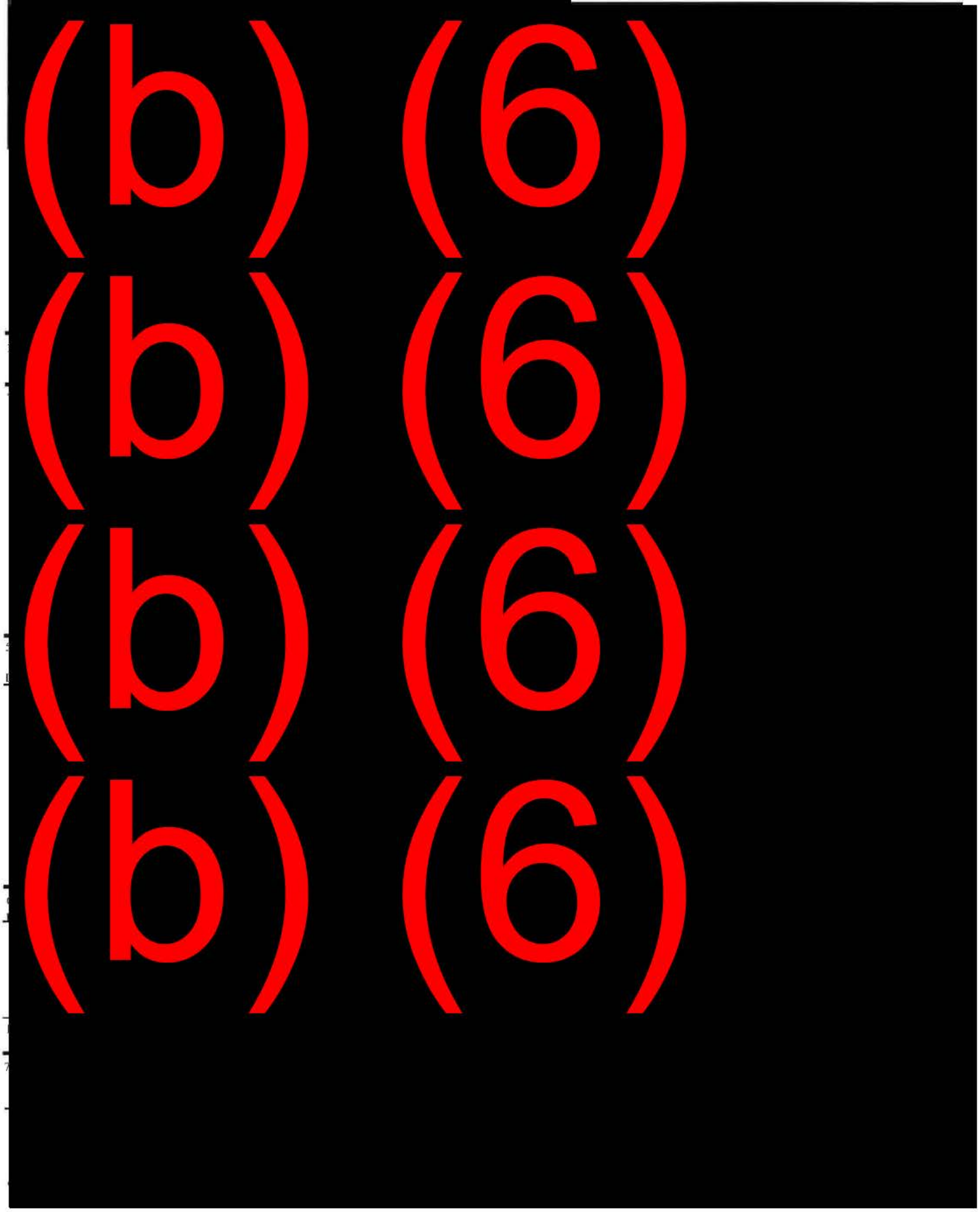


Upper Farm * Well log B

(b) (6)(b) (6)

State of WI - Private Water Systems - DG/2
Department of Natural Resources, Box 7921
Madison, WI 53707
Please type or Print using a black Pen
Please Use Decimals Instead of Fractions.

Form 3300-77A
(R 8/00)



WASTE STORAGE FACILITY DESIGN - 313 STANDARD

CLIENT: Ledgeview Farms, LLC | COUNTY: Brown | DATE: 10/17/14
DSN BY: DLW | CHK BY: | DATE:
COMMENTS: 180 WSF calc

ANIMAL TYPE> 1 (1=DAIRY, 2=BEEF, 3=VEAL, 4=SWINE(finishing), 5=SWINE(farrowing), 6=POULTRY, 0=OTHER)

For Dairy: Rolling Herd Average 25,000 lbs/cow/yr | Is it a stanchion barn? n (Y or N)

MANURE AND WASTEWATER

LIVESTOCK KIND	NUMBER	AVG. WT. PER HEAD	DAILY OUTPUT, CU FT MANURE	BEDDING	TOTAL	DAYS OF STORAGE	VOLUME REQUIRED	ANIMAL UNITS
Cows	(b) (6)	1,400	2.53	0.3	1556.5	180	280,170	(b) (6)
Heifers	(b) (6)	1,000	1.60	0.2	360.0	180	64,800	(b) (6)
Calves	(b) (6)	250	0.40	0.1	187.5	180	33,750	(b) (6)
Heifers	(b) (6)	600	0.60	0.2	104.0	180	18,720	(b) (6)
Beef	(b) (6)	750	0.75	0.2	403.8	180	72,675	(b) (6)
WASTEWATER:			1000	GAL/DAY	133.7	CU FT/DAY		(b) (6) TOT. A.U.
				TOTAL DAILY VOLUME:	2745.4	CU FT / DAY		

3,696,460 GALLONS
Total Manure and Wastewater 494,179 **CU FT**
Expected % solids in waste (Includes runoff and precip.) 11.8 %

RUNOFF VOLUME

MONTHLY RUNOFF
RCN 95 — 12.2 IN. / 12 — X — Ft2 Drainage Area= (Do not include storage area) 0 CU FT

25-Year, 24-HOUR RUNOFF
RCN 95 — 3.73 IN. / 12 — X 0 — Ft2 Drainage Area= (Do not include storage area) 0 CU FT

3,696,460 GALLONS
Total for Manure, Milking Center, Runoff Volume, and 25 Yr Runoff 494,179 **CU FT**

PRECIPITATION

Does the facility collect precipitation? (No roof or lid) 1 (1 for yes, 2 for no)
Beginning Month for Precip. Collection 11 (1=Jan, 2=Feb, etc.)

Precipitation minus evaporation

Average Precipitation on Storage Surface	9.7 INCH	0.8 FT
Average Evaporation from Storage Surface	- 4.8 INCH	- 0.4 FT
Net Precipitation on Storage Surface	4.9 INCH	0.4 FT
25-Yr. 24-Hr Precip on Storage Surface	4.3 INCH	0.4 FT

REMAINING WASTE (If no sump, use these minimums: ponds -2', tanks-1') 0.0 FT

EXTRA DEPTH FOR SAFETY (1-ft. Minimum) 1.0 FT

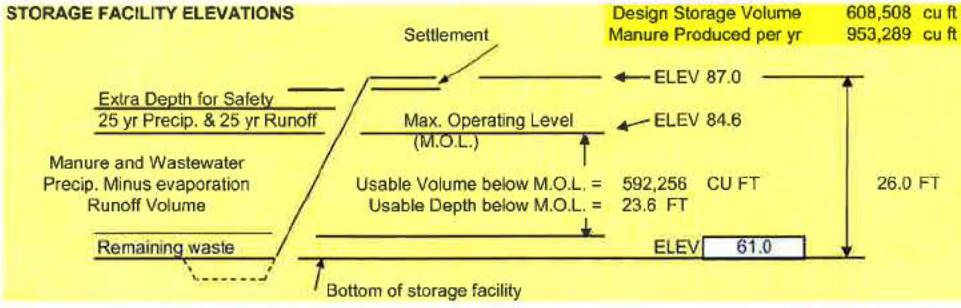
SETTLEMENT (5% of Embankment Height) 1.0 FT

M.O.L. DEPTH (Depth to hold Manure, Wastewater, Runoff, and Precip.) 23.64 FT

Total Depth of the Storage Facility 26.0 FT

STORAGE FACILITY ELEVATIONS

Design Storage Volume 608,508 cu ft
Manure Produced per yr 953,289 cu ft



STORAGE SIZING

IS STORAGE RECTANGULAR OR ROUND ? 1 (1= Rectangular, 2= Round)
SIDE SLOPES OF STORAGE 2.0 :1 (Use "0" for walls)
CHOOSE A BOTTOM WIDTH 130 FT
BOTTOM LENGTH REQUIRED 70 FT
ROUND STORAGE BOTTOM DIAMETER REQUIRED N.A. FT

SECTION FOR FIGURING VOLUME OF A CHOSEN OR EXISTING STORAGE FACILITY

RECTANGULAR

BOTTOM SIDE 1:	130 FT	
BOTTOM SIDE 2:	90 FT	
M.O.L. VOLUME PROVIDED:	592,256 CU FT	4,430,076 GALLONS
DAYS STORAGE PROVIDED:	209 DAYS	

WPDES 180 DAY WASTE STORAGE REQUIRED – 3/14

WASTE STORAGE FACILITY DESIGN - 313 STANDARD

CLIENT: Ledgeview Farms, LLC | COUNTY: Brown | DATE: 3/18/14
DSN BY: Upper Farm 3/14 | CHK BY: _____ | DATE: _____
COMMENTS 180 WSF calc

ANIMAL TYPE > 1 (1=DAIRY, 2=BEEF, 3=VEAL, 4=SWINE(finishing), 5=SWINE(farrowing), 6=POULTRY, 0=OTHER)

For Dairy: Rolling Herd Average 25,000 lbs/cow/yr | Is it a stanchion barn? n (Y or N)

MANURE AND WASTEWATER

LIVESTOCK KIND	NUMBER	AVG. WT. PER HEAD	DAILY OUTPUT, CU FT MANURE	BEDDING	TOTAL	DAYS OF STORAGE	VOLUME REQUIRED	ANIMAL UNITS
Cows	(b) (6)	1,400	2.53	0.3	1556.5	180	280,170	(b) (6)
Heifers	(b) (6)	1,000	1.60	0.2	360.0	180	64,800	(b) (6)
Calves	(b) (6)	250	0.40	0.1	187.5	180	33,750	(b) (6)

WASTEWATER: 1000 GAL/DAY 133.7 CU FT/DAY (b) (6) TOT. A.U.
TOTAL DAILY VOLUME: 2237.7 CU FT / DAY

	3,012,826	GALLONS
Total Manure and Wastewater	402,784	CU FT
Expected % solids in waste (Includes runoff and precip.)	11.3	%

WASTE STORAGE FACILITY DESIGN - 313 STANDARD

CLIENT: Ledgeview Farms, LLC | COUNTY: Brown | DATE: 3/18/14
DSN BY: Lower Farm 3/14 | CHK BY: _____ | DATE: _____
COMMENTS 180 WSF calc

ANIMAL TYPE > 2 (1=DAIRY, 2=BEEF, 3=VEAL, 4=SWINE(finishing), 5=SWINE(farrowing), 6=POULTRY, 0=OTHER)

N/A | N/A

MANURE AND WASTEWATER

LIVESTOCK KIND	NUMBER	AVG. WT. PER HEAD	DAILY OUTPUT, CU FT MANURE	BEDDING	TOTAL	DAYS OF STORAGE	VOLUME REQUIRED	ANIMAL UNITS
Beef	(b) (6)	750	0.75	0.2	403.8	180	72,675	(b) (6)
Heifers	(b) (6)	600	0.60	0.2	104.0	180	18,720	(b) (6)

WASTEWATER: 0 GAL/DAY 0.0 CU FT/DAY (b) (6) TOT. A.U.
TOTAL DAILY VOLUME: 507.8 CU FT / DAY

	683,635	GALLONS
Total Manure and Wastewater	91,395	CU FT
Expected % solids in waste (Includes runoff and precip.)	12.1	%

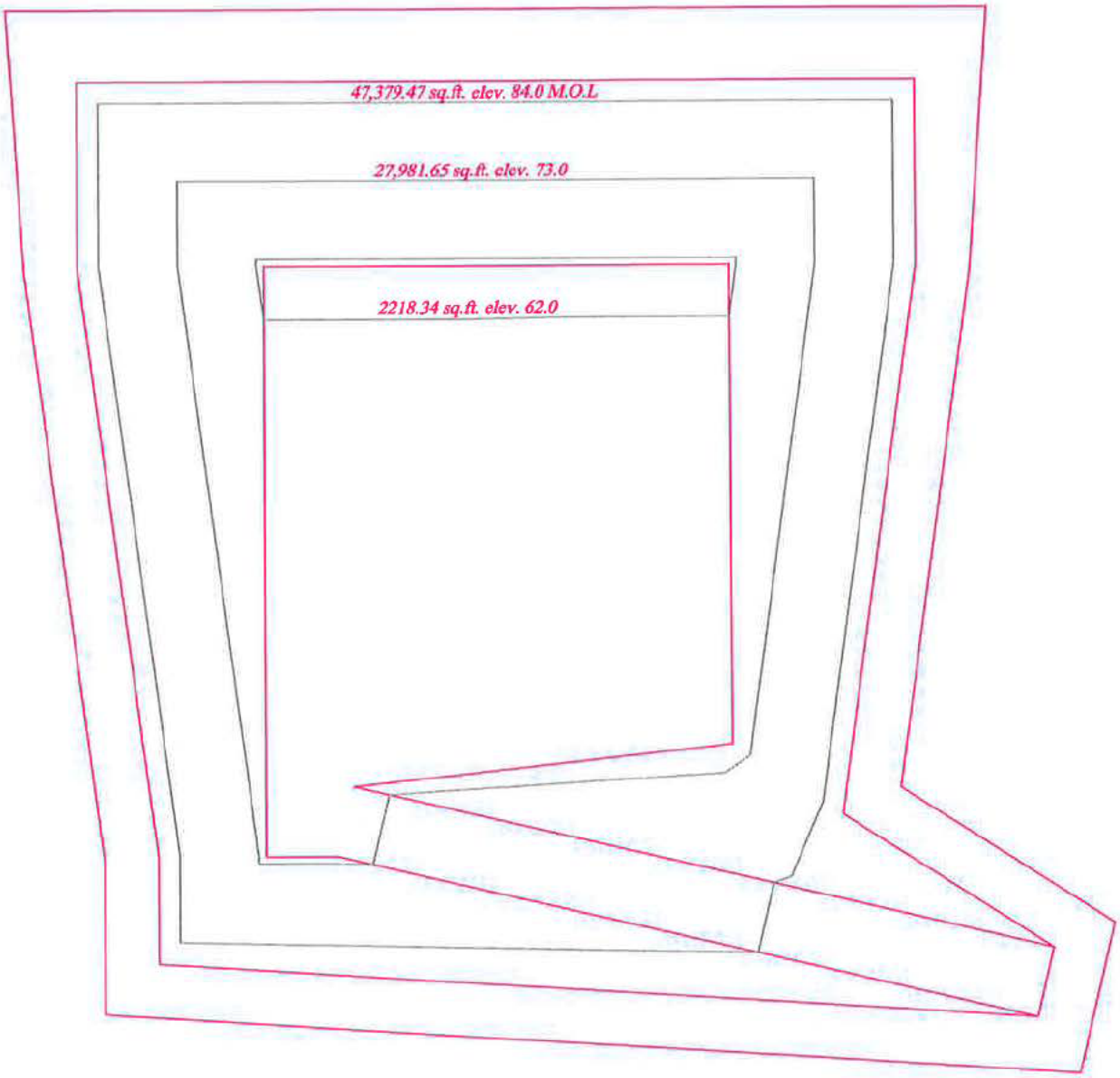
3,012,826
+ 683,635

* Total 180 Day Needs = 3,696,461 gallons

11% - 12% Solids

Volume Calc.

Rect #3



$v = 1/6 (A1+A2+4Am) \times h$

$v = 1/6 (47379.47+22218.34+4(27981.65)) \times 22$

$v = 592,256.17$ cu.ft.

$v = 4,430,076$ gallons

Volume Calc.

(b) (6)

OWNER

Designed: DLW Checked:

SHEET 24 OF _____

(b) (6) (b) (6)

EXISTING CONCRETE TANK VOLUME (CAPACITIES)

TANK #1 (1995) 65,400 cu. ft. = 489,192 gal.

TANK #2 (1999) 67,346 cu. ft. = 503,748 gal.

State of Wisconsin
Department of Natural Resources
PO Box 7185, Madison, WI 53707-7185
dnr.wi.gov

Animal Unit Calculation Worksheet
Form 3400-025A (R 3/2012)

The Current Animal Unit Calculation Worksheet must be filled out separately for the "main" site and each site which are owned or operated by your farm for the purposes of housing animals associated with your operation. The site name, for which you are filling this worksheet out, must be provided below and correlate with Form 3400-025 Site Information (Section II).

Current Animal Unit Calculation Numbers

Name of Site: Ledgeview Farms, LLC - Upper Farm

Animal Type		I. Mixed Animal Units			II. Non-mixed Animal Units		
		b. Equiv. factor	c. Current Number	d. No. of AUs	e. Equiv. factor	f. Current Number	g. No. of Aus
Example - Broilers (non-liquid manure):		*0.005 x*	*150,000*	*= 750*	*0.008 x*	*150,000*	*= 1200*
Dairy/Beef Calves (under 400 lbs)		0.20 x	(b) (6)	= (b) (6) (b) (6)	*Fed numbers in this column comply with 40 CFR s. 122.23*		
Dairy Cattle	Milking & Dry Cows	1.40 x	(b) (6)	= (b) (6)	1.43 x	(b) (6)	= (b) (6) (b) (6) (b) (6)
Dairy Cattle	Heifers (800 lbs to 1200 lbs)	1.10 x	(b) (6)	= (b) (6)			
Dairy Cattle	Heifers (400 lbs to 800 lbs)	0.60 x		=	1.00 x	(b) (6)	= (b) (6)
Beef	Steers or Cows (400 lbs to market)	1.00 x		=			
Beef	Bulls (each)	1.40 x	(b) (6) (b) (6)	= (b) (6) (b) (6)	1.00 x	(b) (6)	= (b) (6) (b) (6)
Veal Calves		0.50 x		=	1.00 x		=
Swine	Pigs (up to 55 lbs)	0.10 x		=	0.10 x		=
Swine	Pigs (55 lbs to market)	0.40 x		=			
Swine	Sows (each)	0.40 x		=			
Swine	Boars (each)	0.50 x		=	0.40 x		=
Chickens	Layers (each) -non-liquid manure system	0.01 x		=	0.0123 x		=
Chickens	Broilers/Pullets (each) -non-liquid manure system	0.005 x		=	0.008 x		=
Chickens	Per Bird -liquid manure system	0.033 x		=	0.0333 x		=
Ducks	Ducks (each) -liquid manure system	0.2 x		=	0.2 x		=
Ducks	Ducks (each) -non-liquid manure system	0.01 x		=	0.0333 x		=
Turkeys (each)		0.018 x		=	0.018 x		=
Sheep (each)		0.1 x		=	0.1 x		=
Horses (each)		2 x		=	2 x		=
Total Animal Units:		**Total Mixed Animal Units =** (add all rows above) (b) (6)			**Total Non-Mixed Animal Units =** (Enter the single highest number from any row above; DO NOT add the totals) (b) (6) (b) (6)		

☐ Check here if there are no proposed increases in animal numbers at this site within the next five years.

State of Wisconsin
Department of Natural Resources
PO Box 7185, Madison, WI 53707-7185
dnr.wi.gov

Animal Unit Calculation Worksheet
Form 3400-025A (R 3/2012)

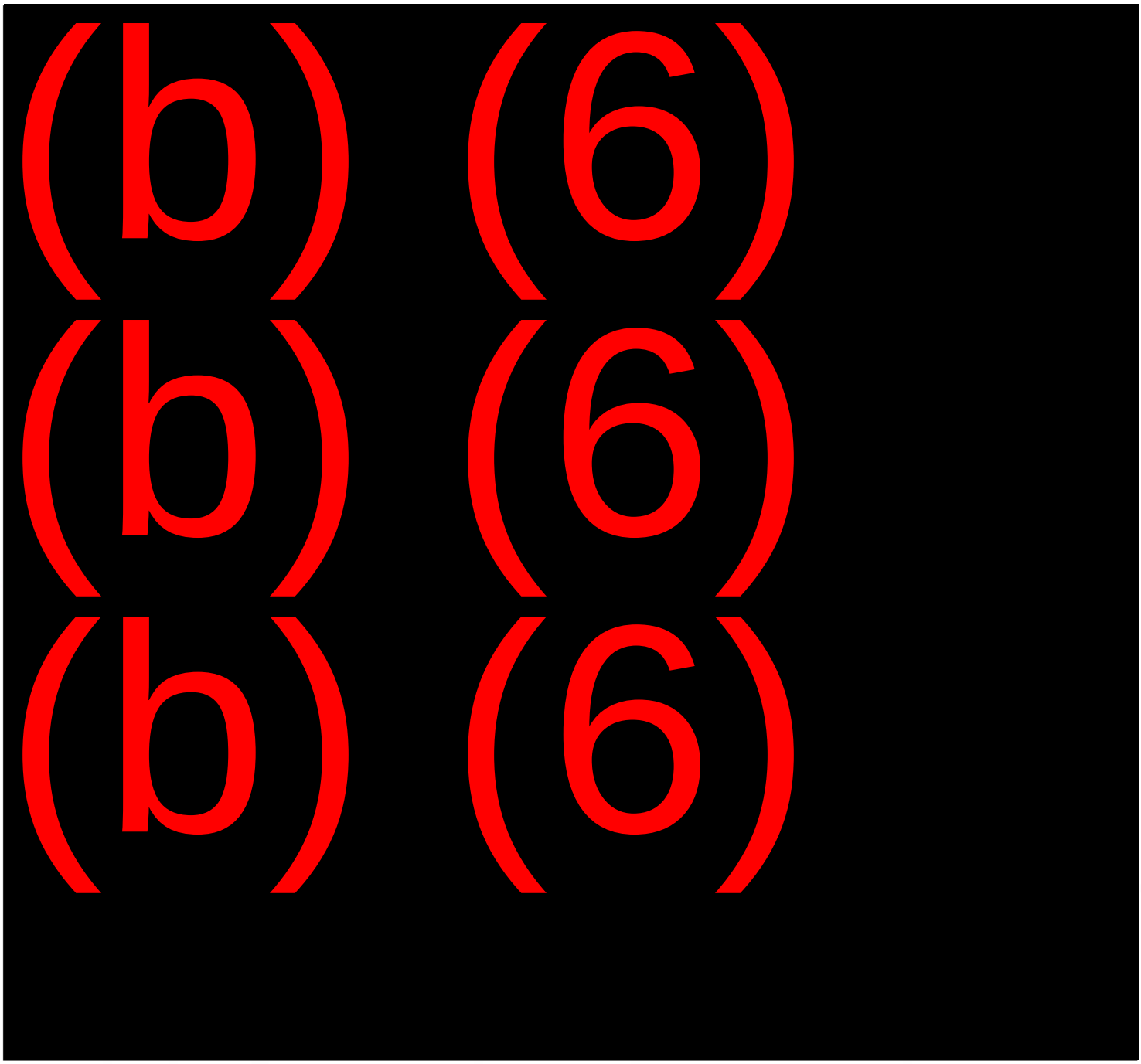
The Current Animal Unit Calculation Worksheet must be filled out separately for the "main" site and each site which are owned or operated by your farm for the purposes of housing animals associated with your operation. The site name, for which you are filling this worksheet out, must be provided below and correlate with Form 3400-025 Site Information (Section II).

Current Animal Unit Calculation Numbers

Name of Site: Ledgeview Farms, LLC Lower Farm

Animal Type		I. Mixed Animal Units			II. Non-mixed Animal Units		
		b. Equiv. factor	c. Current Number	d. No. of AUs	e. Equiv. factor	f. Current Number	g. No. of Aus
Example - Broilers (non-liquid manure):		*0.005 x*	*150,000*	*= 750*	*0.008 x*	*150,000*	*= 1200*
Dairy/Beef Calves (under 400 lbs)		0.20 x		=	*Fed numbers in this column comply with 40 CFR s. 122.23*		
Dairy Cattle	Milking & Dry Cows	1.40 x		=	1.43 x		=
	Heifers (800 lbs to 1200 lbs)	1.10 x		=			
	Heifers (400 lbs to 800 lbs)	0.60 x	(b) (6)	= (b) (6) (b) (6)	1.00 x	(b) (6)	= (b) (6)
Beef	Steers or Cows (400 lbs to market)	1.00 x	(b) (6)	= (b) (6)			
	Bulls (each)	1.40 x		=	1.00 x	(b) (6)	= (b) (6)
(b) (6) Calves		0.50 x		=	1.00 x		=
Swine	Pigs (up to 55 lbs)	0.10 x		=	0.10 x		=
	Pigs (55 lbs to market)	0.40 x		=			
	Sows (each)	0.40 x		=			
	Boars (each)	0.50 x		=	0.40 x		=
Chickens	Layers (each) -non-liquid manure system	0.01 x		=	0.0123 x		=
	Broilers/Pullets (each) -non-liquid manure system	0.005 x		=	0.008 x		=
	Per Bird -liquid manure system	0.033 x		=	0.0333 x		=
Ducks	Ducks (each) -liquid manure system	0.2 x		=	0.2 x		=
	Ducks (each) -non-liquid manure system	0.01 x		=	0.0333 x		=
Turkeys (each)		0.018 x		=	0.018 x		=
Sheep (each)		0.1 x		=	0.1 x		=
Horses (each)		2 x		=	2 x		=
Total Animal Units:		**Total Mixed Animal Units =** (add all rows above) (b) (6)			**Total Non-Mixed Animal Units =** (Enter the single highest number from any row above; DO NOT add the totals) (b) (6)		

☐ Check here if there are no proposed increases in animal numbers at this site within the next five years.


(b) (6)
(b) (6)
(b) (6)